

**LISTING OF CLAIMS:**

Please consider the claims as follows:

1           1.       (currently amended) Apparatus adapted for use in long haul transmission  
2   in an optical communication system, comprising:  
3           ~~a modulator~~ at least one modulator, for modulating an optical phase of pulses  
4   within a sequence of return-to-zero (RZ) pulses having a duty cycle of less than or equal  
5   to approximately 33% in accordance with an input digital data stream to form an optical  
6   phase modulated signal ~~,-said modulator being encoded by~~ one of phase shift keying  
7   (PSK), differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK)  
8   ~~modulator~~ in accordance with an input digital data stream; and  
9           a wavelength division multiplexer adapted to combine an output signal of said at  
10 least one modulator with other optical phase modulated signals having optical carriers  
11 with different wavelengths;  
12           a dispersion managed optical transmission medium for transmitting an output  
13 wavelength division multiplexed signal of said wavelength division multiplexer; and  
14           a means for transmitting the ~~optical phase modulated~~ wavelength division  
15 multiplexed signal in the[[a]] dispersion managed optical transmission medium. medium;  
16           ~~wherein dispersion management is provided by applying pre-dispersion~~  
17 ~~compensation to the optical phase modulated signal containing pulses having a duty cycle~~  
18 ~~of less than or equal to about 33%, and applying post-dispersion compensation to the~~  
19 ~~transmitted signal.~~

2-9.   (canceled)

1           10.       (currently amended) The invention defined in claim 1 wherein said at least  
2   one modulator is a LiNbO3 phase modulator.

1           11.       (currently amended) The invention defined in claim 1 wherein said at least  
2   one modulator is a LiNbO3 Mach-Zehnder phase modulator.

1           12. (currently amended) The invention defined in claim 1 wherein said  
2 apparatus further comprises [[a]] at least one receiver including a delay demodulator for  
3 receiving said input digital data stream ~~the optical phase modulated signal~~ from the  
4 dispersion managed optical transmission medium.

1           13. (currently amended) The invention defined in claim 1 wherein said  
2 apparatus further comprises a receiver including [[a]] at least one balanced receiver for  
3 recovering said input digital data stream from a transmitted wavelength division  
4 multiplexed signal, ~~the phase modulated signal~~.

14. (canceled)

1           15. (previously presented) The invention defined in claim 1 wherein said  
2 transmission medium includes discrete or distributed means of erbium-doped fiber  
3 amplification (EDFA) or Raman amplification.

1           16. (currently amended) A method of transmission ~~in an~~ for long haul optical  
2 communications, comprising the steps of:

3           modulating an optical carrier signal in a sequence of return-to-zero (RZ) pulses  
4 having a duty cycle of less than or equal to approximately 33%;

5           modulating an optical phase of said pulses in accordance with an input digital data  
6 stream to form an optical phase modulated signal via one of phase shift keying (PSK),  
7 differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK);

8           combining said optical phase modulated signal with other optical phase  
9 modulated signals having optical carriers with different wavelengths to form a  
10 wavelength division multiplexed signal; and

11           transmitting said ~~optical phase modulated~~ wavelength division multiplexed signal  
12 in a dispersion managed optical transmission medium, ~~medium~~;

13 wherein dispersion management is provided by applying pre-dispersion  
14 compensation to the optical phase modulated signal containing pulses having a duty cycle  
15 of less than or equal to about 33%, and applying post-dispersion compensation to the  
16 transmitted signal.

17-20. (canceled)

1 21. (newly presented) The method of claim 16, wherein dispersion  
2 management is provided by applying pre-dispersion compensation and post-dispersion  
3 compensation to said wavelength division multiplexed signal.

1 22. (newly presented) The method of claim 16, wherein dispersion  
2 management is provided by soliton transmission of said wavelength division multiplexed  
3 signal.

1 23. (newly presented) The method of claim 22, wherein the dispersion  
2 managed optical transmission medium comprises a plurality of serially interconnected  
3 fibers arranged such that adjacent interconnected fibers have alternating and opposite  
4 dispersion characteristics.

1 24. (newly presented) The method of claim 16, wherein the dispersion managed  
2 optical transmission medium comprises one or more optical fibers exhibiting a high  
3 chromatic dispersion.

1 25. (newly presented) The apparatus of claim 1, wherein dispersion  
2 management is provided by applying pre-dispersion compensation and post-dispersion  
3 compensation to said wavelength division multiplexed signal.

1           26.     (newly presented) The apparatus of claim 1, wherein dispersion  
2     management is provided by soliton transmission of said wavelength division multiplexed  
3     signal.

1           27.     (newly presented) The apparatus of claim 26, wherein the dispersion  
2     managed optical transmission medium further comprises a plurality of serially  
3     interconnected fibers arranged such that adjacent interconnected fibers have alternating  
4     and opposite dispersion characteristics.

1           28.     (newly presented) The method of claim 11, wherein the dispersion  
2     managed optical transmission medium comprises one or more optical fibers exhibiting a  
3     high chromatic dispersion.